

### **Abstract of the Disclosure**

**[00106]** A reagentless, reusable bioelectronic DNA, or other oligonucleotide sequence sensor is disclosed. The sensor includes an oligonucleotide probe tagged with a electroactive, redoxable moiety, self-assembled on or near an electrode. This surface-confined oligonucleotide probe structure undergoes hybridization-induced conformational change in the presence of the target oligonucleotide sequence which change the electron-transfer distance between the redoxable moiety and the electrode thereby providing a detectable signal change. In an alternative embodiment, the target can harbor the redoxable moiety. In a preferred application, the target sequence is associated with an object and its detection is correlated with the authenticity of the object.